Lloyd's Register

Rules and Regulations for the Classification of Ships, July 2012

Notice No. 5

Effective Date of Latest Amendments:

See page 1

Issue date: January 2013

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RULES AND REGULATIONS FOR THE CLASSIFICATION OF SHIPS, *July 2012*

Notice No. 5

This Notice contains amendments within the following Sections of the *Rules and Regulations for the Classification of Ships, July 2012.* The amendments are effective on the dates shown:

Part	***Chapter***	***Section***	***Effective date***
5	8	2	1 January 2013

It will be noted that the amendments also include corrigenda, which are effective from the date of this Notice.

The *Rules and Regulations for the Classification of Ships, July 2012* are to be read in conjunction with this Notice No. 5. The status of the Rules is now:

Rules for Ships	Effective date:	July 2012
Notice No. 1	Effective date:	1 July 2012
Notice No. 2	Effective date:	1 October 2012
Notice No. 3	Effective date:	1 January 2013 & Corrigenda
Notice No. 4	Effective date:	1 January 2013
Notice No. 5	Effective date:	1 January 2013

Part 5, Chapter 8

Shaft Vibration and Alignment

Effective date 1 January 2013

■ *Section 2*
Torsional vibration

2.4 Symbols and definitions

2.4.5 **Stress concentration factor of slots**. The stress concentration factor (*scf*) at the ends of slots can be determined by means of the following empirical formulae:

$$scf = \alpha_{t(hole)} + \cancel{0{,}57}\ 0{,}8 \frac{\frac{(l - e)}{d}}{\sqrt{\left(1 - \frac{d_i}{d}\right)\frac{e}{d}}}$$

This formula applies to:

- Slots at 120 or 180 or 360 degrees apart.
- Slots with semicircular ends. A multi-radii slot end can reduce the local stresses, but this is not included in this empirical formula.
- Slots with no edge rounding (except chamfering), as any edge rounding increases the *scf* slightly.

$\alpha_{t(hole)}$ represents the stress concentration of radial holes and can be determined as :

$$\alpha_{t(hole)} = 2{,}3 - 3\,\frac{e}{d} + 15\left(\frac{e}{d}\right)^2 + 10\left(\frac{e}{d}\right)^2\left(\frac{d_i}{d}\right)^2$$

where

e = hole diameter, in mm

or simplified to $\alpha_{t(hole)} = 2{,}3$.

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